

WHAT IS CLAIMED IS:

- 1 1. A method for repositioning teeth in a patient, said method comprising:
2 applying force to at least one tooth in a jaw of the patient, and
3 administering a tissue remodeling and/or an angiogenic substance(s) to the
4 patient to promote remodeling of periodontal tissue surrounding a root of the tooth.

- 1 2. A method as in claim 1, wherein the substance(s) comprises relaxin or
2 an analog or mimetic thereof.

- 1 3. A method as in claim 1 wherein the substance(s) comprises an
2 substance(s) selected from the group consisting of VEGF, bFGF, estrogen, nitrous oxide,
3 naltrexone, and collagenase.

- 4 4. A method as in claim 3, wherein the substance(s) further comprise
5 relaxin or an analog or mimetic thereof.

- 6 5. A method as in claim 1, wherein administering the substance(s)
7 comprises administering the substance(s) before the force is applied.

- 1 6. A method as in claim 1, wherein administering the substance(s)
2 comprises administering the substance(s) while the force is being applied.

- 1 7. A method as in claim 1, wherein administering the substance(s)
2 comprises administering the substance(s) after the force has been applied.

- 1 8. A method as in claim 1, wherein applying force comprises providing
2 the patient with a removable appliance.

- 1 9. A method as in claim 8, wherein the removable appliance comprises a
2 reservoir which releases the substance(s) to the gingiva of the patient.

- 1 10. A method as in claim 8, wherein the removable appliance is selected
2 from the group consisting of positioners, aligners, and retainers.

- 1 11. A method as in claim 1, wherein applying force comprises adjusting
2 wire and bracket appliances on the teeth.

1 12. A method as in claim 1, wherein applying force comprises positioning
2 an appliance between one or more anchor teeth and one or more target teeth to be moved.

1 13. A method as in claim 12, wherein the substance(s) is preferentially
2 applied to the periodontal tissue surrounding the one or more target teeth while the force is
3 being applied to said target teeth.

1 14. A method as in claim 1, wherein administering the substance(s)
2 comprises administering the substance(s) systemically.

1 15. A method as in claim 1, wherein administering the substance(s)
2 comprises administering the substance(s) locally to the tissue surrounding the root of the
3 tooth.

1 16. A method as in claim 15, wherein administering the substance(s)
2 locally comprises topical delivery of the substance(s) on the gingiva near the tooth.

1 17. A method as in claim 15, wherein topical delivery comprises releasing
2 the substance(s) from a controlled release device engaged against the gingiva.

1 18. A method as in claim 15, wherein topical delivery comprises spreading
2 a fluid substance(s) over the gingiva.

1 19. A method as in claim 15, wherein administering the substance(s)
2 comprises injecting the substance(s) into the tissue surrounding the root.

1 20. A method as in claim 1, further comprising applying an electric current
2 to the periodontal tissue surrounding the root.

1 21. A method as in claim 20, wherein the applied current has a current
2 density in the range from $0.5 \mu\text{A}/\text{mm}^2$ to $6 \mu\text{A}/\text{mm}^2$.

1 22. An improved orthodontic treatment method of the type wherein force
2 is applied to at least one tooth in a patient jaw to reposition said tooth, wherein the
3 improvement comprises administering a tissue remodeling and/or an angiogenic substance(s)
4 to the patient before, during, or after the force has been applied.

1 23. An improved method as in claim 22, wherein the substance(s)
2 comprises relaxin or an analog or mimetic thereof.

1 24. An improved method as in claim 22, wherein the substance(s)
2 comprises a substance(s) comprises relaxin or an analog or mimetic thereof.

1 25. An improved method as in claim 24, wherein the substance(s) further
2 comprise relaxin or an analog or mimetic thereof.

1 26. An improved method as in claim 22, wherein administering the
2 substance(s) comprises administering the substance(s) before the force is applied.

1 27. An improved method as in claim 22, wherein administering the
2 substance(s) comprises administering the substance(s) while the force is being applied.

1 28. An improved method as in claim 22, wherein administering the
2 substance(s) comprises administering the substance(s) after the force has been applied.

1 29. A method as in claim 22, wherein applying force comprises providing
2 the patient with a removable appliance.

1 30. A method as in claim 29, wherein the removable appliance comprises a
2 reservoir which releases the substance(s) to the gingiva of the patient.

1 31. A method as in claim 29, wherein the removable appliance is selected
2 from the group consisting of positioners, aligners, and retainers.

1 32. A method as in claim 22, wherein applying force comprises adjusting
2 wire and bracket appliances on the teeth.

1 33. An improved method as in claim 22, wherein applying force comprises
2 positioning an appliance between one or more anchor teeth and one or more target teeth to be
3 moved.

1 34. An improved method as in claim 33, wherein the substance(s) is
2 preferentially applied to the periodontal tissue surrounding the one or more target teeth while
3 the force is being applied to said target teeth.

1 35. An improved method as in claim 22, wherein administering the
2 substance(s) comprises administering the substance(s) systemically.

1 36. An improved method as in claim 22, wherein administering the
2 substance(s) comprises administering the substance(s) locally to the tissue surrounding the
3 root of the tooth.

1 37. An improved method as in claim 36, wherein administering the
2 substance(s) locally comprises topical delivery of the substance(s) on the gingiva near the
3 tooth.

1 38. An improved method as in claim 36, wherein topical delivery
2 comprises releasing the substance(s) from a controlled release device engaged against the
3 gingiva.

1 39. An improved method as in claim 36, wherein topical delivery
2 comprises spreading a fluid substance(s) over the gingiva.

1 40. An improved method as in claim 36, wherein administering the
2 substance(s) comprises injecting the substance(s) into the tissue surrounding the root.

1 41. A method as in claim 22, further comprising applying an electric
2 current to the periodontal tissue surrounding the root.

1 42. A method as in claim 41, wherein the applied current has a current
2 density in the range from $0.5 \mu\text{A}/\text{mm}^2$ to $6 \mu\text{A}/\text{mm}^2$.

1 43. An oral substance(s) delivery appliance comprising:
2 a structure mountable on or over at least a portion of a patient's gingiva; and
3 a tissue remodeling and/or an angiogenic substance(s) carried by the structure
4 so that said substance(s) is released into at least a region of the gingiva when the structure is
5 mounted on or over the gingiva.

1 44. An oral delivery appliance as in claim 43, wherein the structure mounts
2 over the gingiva of an entire jaw.

1 45. An oral delivery appliance as in claim 43, wherein the structure mounts
2 over the gingiva of less than the entire jaw.

1 46. An oral delivery appliance as in claim 45, wherein the structure mounts
2 over the gingiva adjacent the roots of from one to five individual teeth.

1 47. An oral delivery appliance as in claim 43, wherein the structure
2 comprises a patch.

1 48. An oral delivery appliance as in claim 43, wherein the structure
2 comprises a shell which is removably placeable over the teeth.

1 49. An oral delivery structure as in claim 43, wherein the structure
2 comprises a porous structure which releases the substance(s) at a controlled rate over time.

1 50. An oral delivery structure as to claim 43, wherein the substance(s) is
2 present in a matrix which degrades over time in the oral environment.

1 51. A topical oral composition, said composition comprising:
2 a carrier which may be topically applied to a patient's gingiva, and
3 a tissue remodeling and/or an angiogenic substance(s) in the carrier, wherein
4 the substance(s) releases into gingival tissue when the composition is topically applied to the
5 gingiva.

1 52. A topical oral composition as in claim 49, wherein the carrier is a gel.

1 53. A topical oral composition as in claim 49, wherein the substance(s)
2 comprises relaxin or an analog or mimetic thereof.

1 54. A topical oral composition as in claim 49, wherein the substance(s)
2 comprises an angiogenic substance(s) selected from the group consisting of VEGF, bFGF,
3 estrogen, nitrous oxide and naltrexone.

1 55. A topical oral composition as in claim 49, wherein the substance(s)
2 further comprise relaxin, a mimetic or an analog thereof.

1 56. A method for enhancing tooth mobility or stability, said method
2 comprising administering a tissue remodeling and/or angiogenic substance(s) to a living host.

1 57. A method as in claim 56, wherein the host will be having, is having, or
2 has had orthodontic treatment.

1 58. A method as in claim 56, wherein the substance(s) comprises relaxin or
2 an analog or mimetic thereof.

1 59. A method as in claim 56, wherein the substance(s) comprises an
2 angiogenic substance(s) selected from the group consisting of VEGF, bFGF, estrogen, nitrous
3 oxide and naltrexone.

1 60. A method as in claim 54, wherein the substance(s) further comprise
2 relaxin or an analog or mimetic thereof.

1 61. A method as in claim 56, wherein administering the substance(s)
2 comprises administering the substance(s) before the force is applied.

1 62. A method as in claim 56, wherein administering the substance(s)
2 comprises administering the substance(s) while the force is being applied.

1 63. A method as in claim 56, wherein administering the substance(s)
2 comprises administering the substance(s) after the force has been applied.

1 64. A method as in claim 56, wherein applying force comprises providing
2 the patient with a removable appliance.

1 65. A method as in claim 64, wherein the removable appliance comprises a
2 reservoir which releases the substance(s) to the gingiva of the patient.

1 66. A method as in claim 64, wherein the removable appliance is selected
2 from the group consisting of positioners, aligners, and retainers.

1 67. A method as in claim 56, wherein applying force comprises adjusting
2 wire and bracket appliances on the teeth.

1 68. A method as in claim 56, wherein applying force comprises
2 positioning an appliance between one or more anchor teeth and one or more target teeth to be
3 moved.

1 69. A method as in claim 68, wherein the substance(s) is preferentially
2 applied to the periodontal tissue surrounding the one or more target teeth while the force is
3 being applied to said target teeth.

1 70. A method as in claim 56, wherein administering the substance(s)
2 comprises administering the substance(s) systemically.

1 71. A method as in claim 56, wherein administering the substance(s)
2 comprises administering the substance(s) locally to the tissue surrounding the root of the
3 tooth.

1 72. A method as in claim 71, wherein administering the substance(s)
2 locally comprises topical delivery of the substance(s) on the gingiva near the tooth.

1 73. A method as in claim 71, wherein topical delivery comprises releasing
2 the substance(s) from a controlled release device engaged against the gingiva.

1 74. A method as in claim 71, wherein topical delivery comprises spreading
2 a fluid substance(s) over the gingiva.

1 75. A method as in claim 71, wherein administering the substance(s)
2 comprises injecting the substance(s) into the tissue surrounding the root.

1 76. A method as in claim 56, further comprising applying an electric
2 current to the periodontal tissue surrounding the root.

1 77. A method as in claim 76, wherein the applied current has a current
2 density in the range from 0.5 μ A/mm² to 6 μ A/mm².

1 78. Relaxin or an analog or mimetic thereof for use in the manufacture of a
2 composition for topical delivery to the gingiva to promote tooth mobility and/or stability.